Full Thickness Versus Circular Peroral Myotomy in the Treatment of Esophageal Achalasia: A Systematic Review and Meta-Analysis

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Introduction: Peroral endoscopic myotomy (POEM) is an effective procedure that is used to treat esophageal achalasia. Early studies recommended a circular myotomy where the circular muscle layer is cut with preservation of the longitudinal layer. Recent studies have investigated full thickness myotomy as a possible alternative.

Methods: We performed a comprehensive search in the databases of PubMed/MEDLINE, Embase, and the Cochrane Central Register of Controlled Trials from inception through April 20th, 2022. We considered only randomized controlled trials. The primary outcome was clinical success. The secondary outcomes were the occurrence of subcutaneous emphysema and post-procedure reflux symptoms. The random-effects model was used to calculate the risk ratios (RR), mean differences (MD), and confidence intervals (CI). A p value <0.05 was considered statistically significant.

Results: Six randomized controlled trials involving 774 patients were included in the meta-analysis. The rate of clinical success was not statistically different between the two groups (RR 1.02, 95% CI 0.98-1.06, p = 0.45, I2 = 0%) (Figure 1a). The rate of subcutaneous emphysema was significantly lower in the full thickness group (RR 0.62, 95% CI 0.43-0.89, p = 0.01, I2 = 0%) (Figure 1b). The rate of post-procedure reflux symptoms was not statistically different between the two groups (RR 1.10, 95% CI 0.60-2.02, p = 0.75, I2 = 22%).

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Discussion: Our meta-analysis demonstrated that clinical success and the post-procedure reflux symptoms were both not statistically different between full thickness and circular PEOM. However, subcutaneous emphysema was significantly lower in the full thickness myotomy group.

